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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/641,377	08/14/2003	Yu-Cheng Hsu	TUC920030061US1	9637

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EXAMINER	
WEI, ZHENG	
ART UNIT	**PAPER NUMBER**
2192	

DATE MAILED: 10/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/641,377	HSU ET AL.	
	Examiner	Art Unit	
	Zheng Wei	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/14/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the application filed on 08/14/2003.

2. Claims 1-26 are pending and have been examined.

Priority

3. The priority date for this application is 08/14/2003. No continuing data and foreign applications are related to this application.

Information Disclosure Statement

4. The information disclosure statement filed 08/14/2003 has been placed in the application file and the information referred to therein has been considered.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-7, 9-12, 15-17, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Testardi (Rich P. Testardi, US 6,249,882)

Claim 1:

Testardi discloses an apparatus for debugging source code, the apparatus comprising:

- a source code debugger configured to display state information (see for example, Fig.2, item 216 and related text, "Indicate Failure to Test User"); and
- at least one initialization routine configured to initialize a target environment to a particular state, the at least one initialization routine corresponding to a target function within a target application (see for example, Fig.2, item 206 and related text, also see col.7, lines 19-22, "particular global variables within the program under test may need to be initialized prior to performing the test sequence.").

Claim 2:

Testardi discloses the apparatus of claim 1, further comprising a task dispatcher configured to dispatch the at least one initialization routine in response to an execution request (see for example, col.6, lines 32-34, "test manager 108 through interpreter 110 has initialized (dispatched) the environment of computer 102 as required to perform the desired test").

Claim 3:

Testardi also discloses the apparatus of claim 1, further comprising a function selector configured to generate an execution request in response to selection of the target function by a user (see for example, col.6, lines 30-31, "executive 112 within test manager 108 invokes the program under test 104 so as to perform the desired test sequence.").

Claim 4:

Testardi further discloses the apparatus of claim 3, wherein the function selector is integrated into the source code debugger (see for example, Fig.1, item 108, 112 and related text, "test Manager", "Executive")

Claim 5:

Testardi also discloses the apparatus of claim 1, wherein the particular state corresponds to an application error (see for example, Fig.2, item 216 and related text, "Indicate Failure to Test User").

Claim 6:

Testardi also discloses the apparatus of claim 1, further comprising a deployed system configured to dump information used to initialize the target environment to the particular state (see for example, col.7, lines 23-24, "Element 208 is then operable to execute the test sequence while capturing the generated output results therefrom").

Claim 7:

Testardi further discloses the apparatus of claim 1, wherein the at least one initialization routine comprises a function-independent initialization routine and a function-dependent initialization routine (see for example, col.10, lines 15-31, "Invoke desired procedures and functions with specific parameters" and "Display function results from invocation of functions in the program under test").

Claim 9:

Testardi discloses a method for debugging source code, the method comprising:

- dispatching at least one initialization routine corresponding to a target function, the at least one initialization routine configured to initialize a target environment to a particular state (see for example, Fig.2, item 206 and related text, also see Fig.3, item 304 and related text);
- dispatching the target function (see for example, Fig.3, item 308 and related text); and
- displaying state information within a source code debugger (see for example, item 312 and related text, "Return success or failure of test sequence to user").

Claim10:

Testardi also discloses the method of claim 9, further comprising collecting state information from a deployed environment (see for example, Fig.3, item 306 and related text, "Redirect output streams of program under test for capture in files).

Claim 11:

Testardi discloses the method of claim 9, further comprising collecting state information in response to an application error (see for example, item 312 and related text, "Return success or failure of test sequence to user").

Claim 12:

Testardi further discloses the method of claim 9, wherein dispatching the at least one initialization routine comprises dispatching a function-independent initialization routine and a function-dependent initialization routine (see for example, col.10, lines 15-31, "Invoke desired procedures and functions with specific parameters" and "Display function results from invocation of functions in the program under test").

Claim 15:

Testardi discloses an apparatus for debugging source code, the apparatus comprising:

- means for dispatching at least one initialization routine corresponding to a target function, the at least one initialization routine configured to initialize

a target environment to a particular state (see for example, Fig.2, item 206 and related text, also see Fig.3, item 304 and related text);

- means for dispatching the target function (see for example, Fig.3, item 308 and related text); and
- means for displaying state information (see for example, item 312 and related text, "Return success or failure of test sequence to user").

Claim 16:

Testardi also discloses the apparatus of claim 15, further comprising means for collecting state information from a deployed environment (see for example, Fig.3, item 306 and related text, "Redirect output streams of program under test for capture in files).

Claim 17:

Testardi discloses the apparatus of claim 15, further comprising means for collecting state information in response to an application error (see for example, item 312 and related text, "Return success or failure of test sequence to user").

Claim 19:

Testardi discloses a system for debugging source code, the system comprising:

- a target environment comprising a target platform including an operating system and a target application (see for example, Fig.1, items 102, 104 and related text);
- a source code debugger configured to display state information (see for example, Fig.2, item 216 and related text, "Indicate Failure to Test User"); and
- at least one initialization routine configured to initialize the target environment to a particular state, the at least one initialization routine corresponding to a target function within the target application (see for example, Fig.2, item 206 and related text, also see col.7, lines 19-22, "particular global variables within the program under test may need to be initialized prior to performing the test sequence.").

Claim 20:

Testardi also disclose the system of claim 19, further comprising a deployed system configured to provide information used to initialize the target environment to the particular state (see for example, col.9, lines 24-26, "the debugger tool may be used to force a particular function call to fail to simulate such a resource allocation failure condition").

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Testardi (Rich P. Testardi, US 6,249,882)

Claims 21-24:

Claims 21-24 are computer readable storage medium comprising computer readable code for debugging source code, which are the product version of the claimed methods discussed as in claims 9-12 above. It is well known in the computer art to practice and store the computer readable code in such computer readable storage medium. Therefore, these claims are also obvious over Testardi.

9. Claims 8, 13, 18 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Testardi (Rich P. Testardi, US 6,249,882) in view of Rosenberg (Jonathan B. Rosenberg, "How Debuggers Work")

Claims 8 and 18:

Testardi discloses the testing systems of claims 1 and 15 above respectively, wherein the program debugging tool (debugger) can permit precise control of the

execution of particular modules or functions (see for example, col.9, lines 47-52, "...conjunction with a program debugging tool (debugger) to permit precise control of the execution of particular modules or functions within the program under test..."), but does not explicitly disclose the precise control is "single step". However, Rosenberg in the same analogous art about debugger discloses using "single-step" to control the execution (Chapter 6, "Breakpoints and Single Stepping", section Single-step, page 119). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use single-step in Testardi's system to precise control the execution of program. One would have been motivated to do so to precise control the program execution as once suggested by Rosenberg (Chapter 6, "Breakpoints and Single Stepping", section Single-step, page 119, line 21, "Single-step is important because users need to be able to 'watch' execution proceed."). So as applicants admitted the prior art in the specification paragraph [0007].

Claims 13 and 25:

Testardi discloses the software testing method of claims 9 and 21 above respectively, wherein the program debugging tool (debugger) can permit precise control of the execution of particular modules or functions (see for example, col.9, lines 47-52, "...conjunction with a program debugging tool (debugger) to permit precise control of the execution of particular modules or functions within the program under test..."), but does not explicitly disclose the precise control is

"single step". However, Rosenberg in the same analogous art about debugger discloses using "single-step" to control the execution (Chapter 6, "Breakpoints and Single Stepping", section Single-step, page 119). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use single-step in Testardi's system to precise control the execution of program. One would have been motivated to do so to precise control the program execution as once suggested by Rosenberg (Chapter 6, "Breakpoints and Single Stepping", section Single-step, page 119, line 21, "Single-step is important because users need to be able to 'watch' execution proceed."). So as applicants admitted the prior art in the specification paragraph [0007].

10. Claims 14 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Testardi (Rich P. Testardi, US 6,249,882) in view of Frascone (David Frascone, "Debugging kernel modules with user-mode Linux")

Claims 14 and 26:

Testardi discloses the method of claims 9 and 21 above respectively, but does not disclose the method further comprises recompiling kernel-mode code into user-mode code. However, Frascone in the same analogous art about debugger discloses debugging kernel modules with user-mode (see for example, p.1, lines 2-16, "the kernel hangs", user-mode Linux (UML) and related text). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Frascone's teachings into Testardi to provide

debugging code in the user-mode. One would have been motivated to recompile kernel-mode code into user-mode (UML) which can be used to debug in user-mode and avoid kernel hangs as once suggested by Frascone (see for example, p.1, lines 2-16).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Chkodrov et al. (US 6,915,509 B1) discloses a method and system for debugging a program.
- Hinckley (David N. Hinckley, US 6,002,869) discloses a system and method for automatically testing software programs

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zheng Wei whose telephone number is (571) 270-1059. The examiner can normally be reached on Monday-Thursday 8:00-15:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is 571- 272-1000.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TUAN DAM
SUPERVISORY PATENT EXAMINER